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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,149	01/24/2005	Yossi Kaplan	11001.1020	8803

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EXAMINER

AJIBADE AKONAI, OLUMIDE

ART UNIT	PAPER NUMBER
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2617

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/523,149

Applicant(s)

KAPLAN ET AL.

Examiner

Olumide T. Ajibade-Akonai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-54 and 56-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41, 47-50, 52, 56, 57, 63, 64 and 66 is/are rejected.
- 7) ☒ Claim(s) 42-46, 51, 53, 54, 58-62, 65 and 67 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 41, 48, 49, 52, 56, 63, 64 and 66 are rejected under 35 U.S.C. 102(e) as being anticipated by **Bahl et al 6,385,454 (hereinafter Bahl)**.

Regarding **claim 41**, Bahl discloses a method for correlating a vehicle with the road on which it travels based on cellular communication, the method comprising the steps of: gathering a sequence of events, such as call processing events or location related events from the cellular network (UMP, see col. 8, lines 57-67), together with the location of the mobile unit at the timing of these events (occurrence times, see col. 8, lines 39-41) as a location reference and creating a learnt database (UMPs are stored in a user profile memory 33, see fig. 2, col. 8, lines 33-35); and conducting analysis of new data (UAP, see col. 8, lines 25-30), generated from communication with another mobile unit on a new drive that does not contain location reference in conjunction with the learnt database to match a sequence of reports to a specific route (the user's actual

path UAP is compared to the user's mobility pattern UMP, see col. 9, lines 25-39); whereas the data is processed to overcome the problem of similar sequences for neighboring routes (the UAP is compared to the UMP in order to provide the predicted present route of the mobile unit, see col. 8, lines 25-39).

Regarding **claim 48**, as applied to claim 1, Bahl further discloses where as the analysis stage comprises of: matching cell chains from new drives to the learnt database by searching for a chain of J cells that has at least K ($K \leq J$) cells that appear in the same order, both in a chain from the new drive as well as in a chain from the learnt database, whereas J and K may vary for different route sections (the user's actual path UAP is compared to the user's mobility pattern UMP, see col. 9, lines 25-39); assigning the route of the chain from the learnt database to the new chain that was matched (the UAP is compared to the UMP in order to provide the predicted present route of the mobile unit, see col. 8, lines 25-39).

Regarding **claim 49**, as applied to claim 48, Bahl further discloses where as the analysis stage includes a secondary matching procedure comprising of matching cells before and after the match we have detected in the initial stage by following the raw data chains in the learnt database backward and forward relative to the matched chain and looking for an L out of M ($L \leq M$) cells match where as M is typically smaller than J, where as L and M may vary for different route sections (the user's actual path UAP is compared to the user's mobility pattern UMP, see col. 9, lines 25-39).

Regarding **claim 52**, as applied to claim 41, Bahl further discloses where as the analysis of new drives is conducted based only on cell ID data (see col. 8, lines 17-39).

Regarding **claim 56**, as applied to claim 41, Bahl further discloses where as the analysis stage comprises of: matching cell chains from new drives to chains in the learnt database the user's actual path UAP is compared to the user's mobility pattern UMP, see col. 9, lines 25-39), filter out new chains that were matched with chains in the learnt database which represent more than one route section the UAP is compared to the UMP in order to provide the predicted present route of the mobile unit, see col. 8, lines 25-39).

Regarding **claim 63**, Bahl discloses a method for correlating a vehicle with the road it travels on based on cellular communication, the method comprising the steps of: collecting handover sequences statistics for the relevant area (UMP, see col. 8, lines 57-67); collecting traffic volume information for each route from external sources (local prediction, LP, see col. 11, lines 36-48); assigning handover sequences to routes according to volume comparison analysis (UAP, see col. 8, lines 25-30); and conducting analysis of new handover sequences from new drives in the relevant area in conjunction with the previously collected handover and traffic volume information to identify a route at certain time points during cellular phone calls (the UAP is compared to the UMP in order to provide the predicted present route of the mobile unit, see col. 8, lines 25-39).

Regarding **claim 64**, as applied to claim 41, Bahl further discloses whereas the method is used for areas where at least 2 roads are covered, at least partially, by the same 2 or more cells (inherent, since the storing of multiple UMPs in the user profile memory indicates that multiple routes/roads are covered, see col. 8, lines 40-56).

Regarding **claim 66**, as applied to claim 41, Bahl further discloses where as further analysis is conducted to continuously update the learnt database. This analysis comprises of the follows: estimate the location of handovers within matched sequences that do not appear in the database (see col. 8, lines 40-60); and add new matched sequences to the learnt database (when UAP is different from stored UMP by more than a threshold amount of cells, the UAP is stored in a user profile memory 33 as a new UMP, see col. 8, lines 57-60).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 47, 50 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bahl et al 6,385,454 (hereinafter Bahl)** in view of **Rudrapatna et al 6,052,598 (hereinafter Rudrapatna)**.

Regarding **claim 47**, as applied to claim 41, Bahl discloses the claimed invention except where as in the learning phase the accuracy level of a handover is calculated in one or a combination of the following ways: using signal strength measurements to detect sharp decays in signal strength resulting in a handover and thus determine handovers accuracy level; measuring the location spread of handovers between the

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same cells for different trips over the same route to determine handover accuracy level and average location.

In the same field of endeavor, Rudrapatna discloses using signal strength measurements to detect sharp decays in signal strength resulting in a handover and thus determine handovers accuracy level (see figs. 1-3, col. 3, lines 21-51); measuring the location spread of handovers between the same cells for different trips over the same route to determine handover accuracy level and average location.

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Rudrapatna into the system of Bahl for the purpose of determining the location of a mobile phone in a cell.

Regarding **claim 50** as applied to claim 41, Bahl further discloses where as an analysis is conducted to detect the vehicle location in specific points along the route comprises of: extracting matching handovers (cell pairs) information of a new chain (location, timing, accuracy) from chains in the learnt database that were matched with it (the UAP is compared to the UMP in order to provide the predicted present route of the mobile unit, see col. 8, lines 25-39).

Bahl fails to disclose calculating location and accuracy of handovers in the new chain according to handovers from the extracted chains from the learnt database that relate to the same route section and contain the same cell pairs.

Rudrapatna, however, further discloses calculating location and accuracy

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of handovers in the new chain according to handovers from the extracted chains from the learnt database that relate to the same route section and contain the same cell pairs (see figs. 1-3, col. 3, lines 21-51).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the combination of Bahl and Rudrapatna for the purpose of determining the location of a mobile phone in a cell.

Regarding **claim 57** as applied to claim 41, Bahl further discloses where as an analysis is conducted to detect the vehicle location in specific points along the route comprises of: extracting matching handovers (cell pairs) information of a new chain (location, timing, accuracy) from chains in the learnt database that were matched with it (the UAP is compared to the UMP in order to provide the predicted present route of the mobile unit, see col. 8, lines 25-39).

Bahl fails to disclose calculating location and accuracy of handovers in the new chain according to handovers from the extracted chains from the learnt database that relate to the same route section and contain the same cell pairs.

Rudrapatna, however, further discloses calculating location and accuracy of handovers in the new chain according to handovers from the extracted chains from the learnt database that relate to the same route section and contain the same cell pairs (see figs. 1-3, col. 3, lines 21-51).

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the combination of Bahl and Rudrapatna for the purpose of determining the location of a mobile phone in a cell.

Allowable Subject Matter

6. Claims 42-46, 51, 53, 54, 58-62, 65 and 67 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 12 January have been fully considered but they are not persuasive. Regarding claims 41 and 63, Bahl discloses a mobile unit MU with a processing unit with a prediction engine (see fig. 2, col. 7, lines 56-65). The prediction engine 25 creates a user's actual path UAP which is a sequence of cells the MU has passed through during the current connection (see col. 8, lines 25-30). This broadly reads on the claimed limitation generating "new data" from communication with another mobile unit on a new drive that does not contain a location reference. Bahl's description of the "user's mobility patterns" UMP which are records of previous routes taken by the MU and the storing of the UMPs in the memory of the MU reads on the claimed limitation of "gathering a sequence of events, such as call processing events or location related events from the cellular network together with the location of the mobile unit at the timing of these events as a location reference and creating a learnt database". Comparing the UAP and UMP, and based on the UAP and UMP being different by a threshold number of cells storing the UAP as a new UMP broadly reads on the claimed limitation of "conducting analysis of new data... whereas the data is processed to overcome the problem of similar sequences for neighboring routes" since the purpose of comparing UAP and UMP is to reduce the number of similar routes (see col. 8, lines 25-

60). The examiner therefore maintains that Bahl discloses the claimed limitations in claims 41 and 63. Claims 41 and 63 therefore stand rejected.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tu et al 6,381,463 discloses a method and apparatus for providing intelligent cellular handoff.

Newbury et al 20020102976 discloses a system and method for performing inter-layer handoff in a hierarchical cellular system.

Bahl et al discloses "Mobility Modeling, Location Tracking, and Trajectory Prediction in wireless ATM Networks".

Hellebrandt et al discloses "Estimating Position and Velocity of Mobiles in a Cellular Radio Network".

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olumide T. Ajibade-Akonai whose telephone number is 571-272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph H. Field can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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JOSEPH FEILD
SUPERVISORY PATENT EXAMINER